

Overview of Delta Island Subsidence

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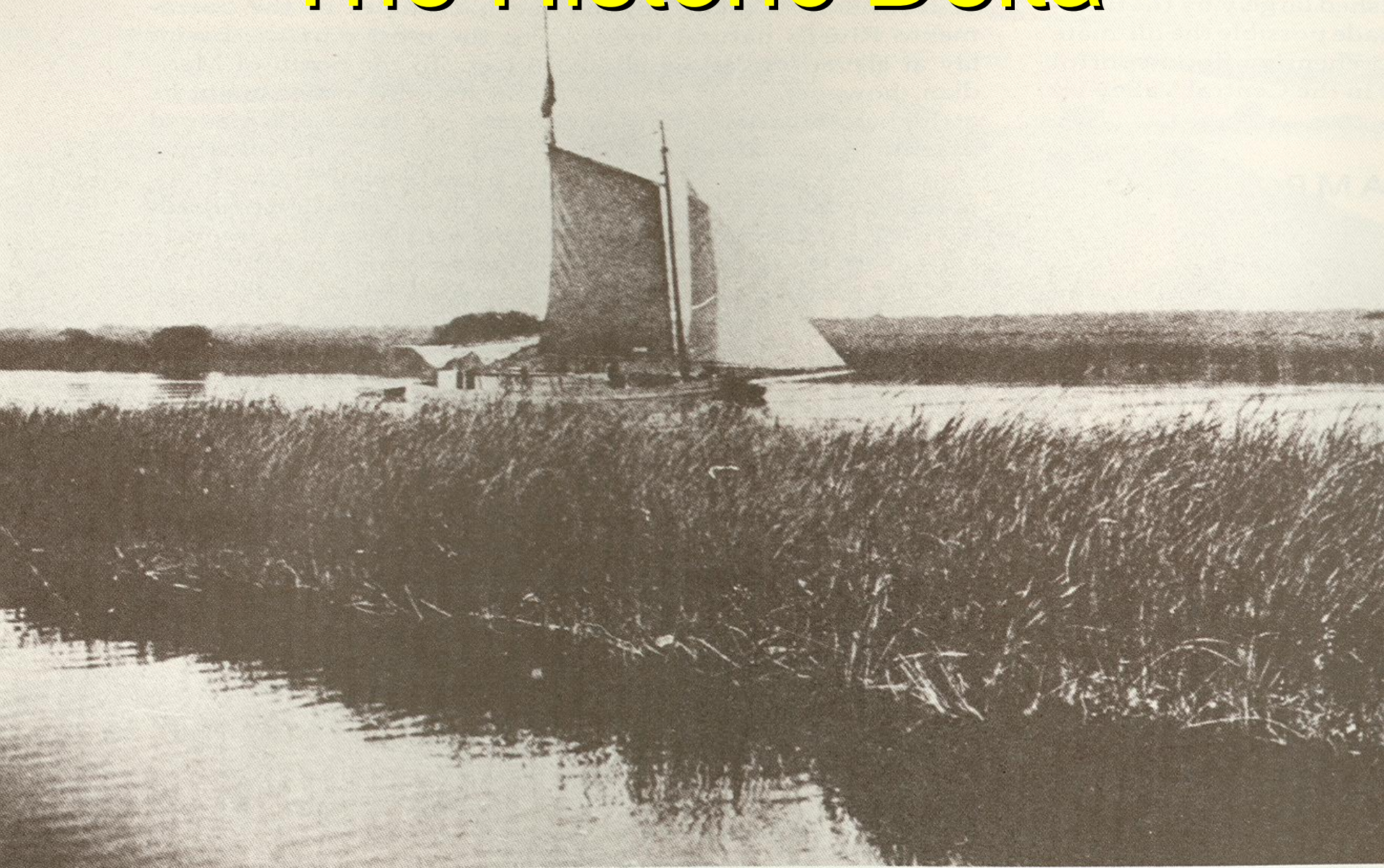
SACRAMENTO-SAN JOAQUIN DELTA

Sacramento San Joaquin Delta

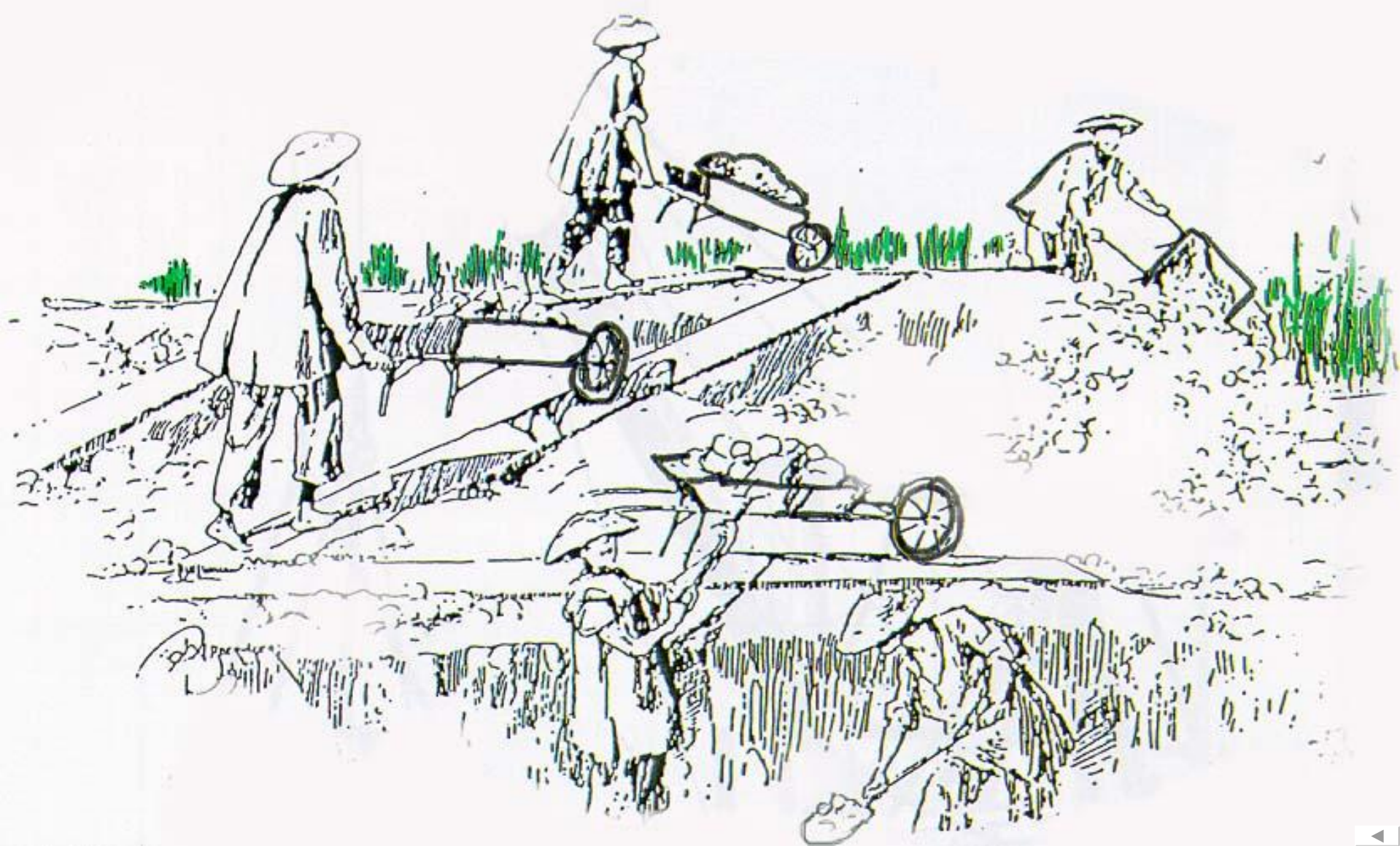
- Collects flow from 5 rivers
- Drains 47% of total State runoff
- 1,100 miles of Delta levees; 370 federal and 730 non-federal
- Hub for water in California



The Historic Delta



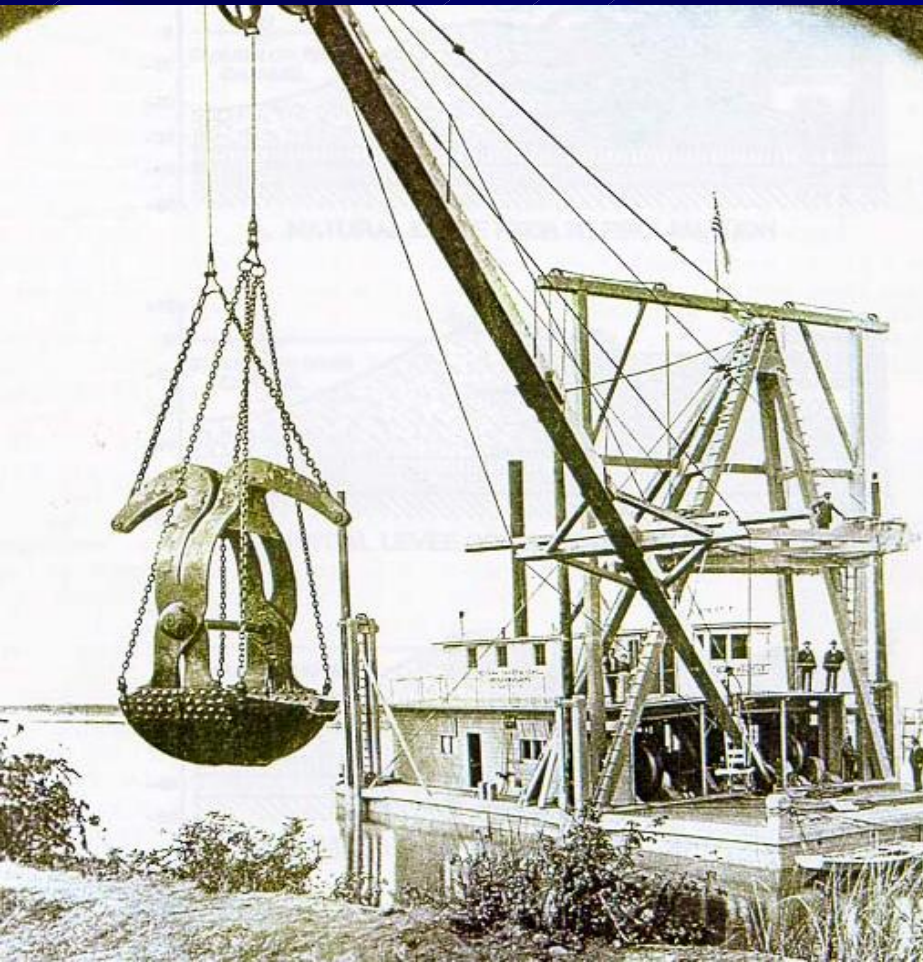
Levee Construction – Early Days



Levee Construction - Advances

Levee Construction Using Clamshell Dredging

Then



Now



12.08.2004

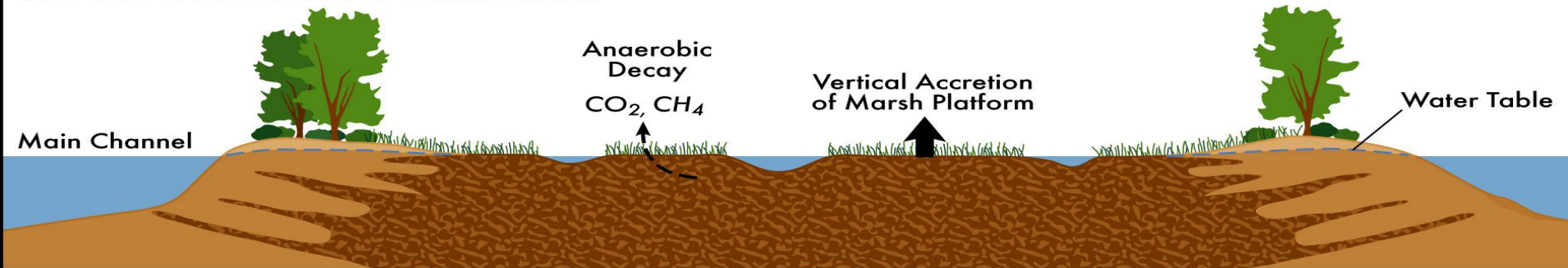
Subsidence

- Oxidation (farming) 50 lbs/ac/day
- Consolidation
- Wind erosion
- Burning
- Rates
 - 6 inches/year max
 - 1.5 inch/year currently on average
 - 27,000 cubic meters/day
 - 300,000 acre-feet every decade

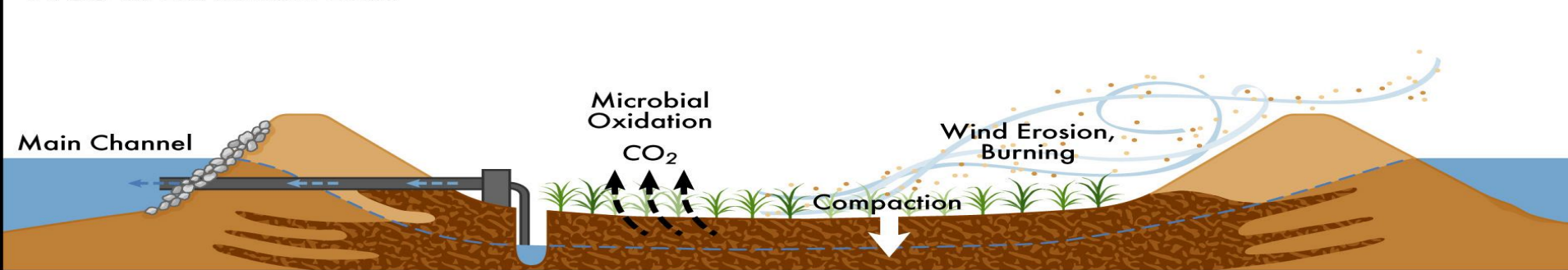
Delta Subsidence – The phenomenon

Graphic courtesy of Dr. Jeffrey Mount

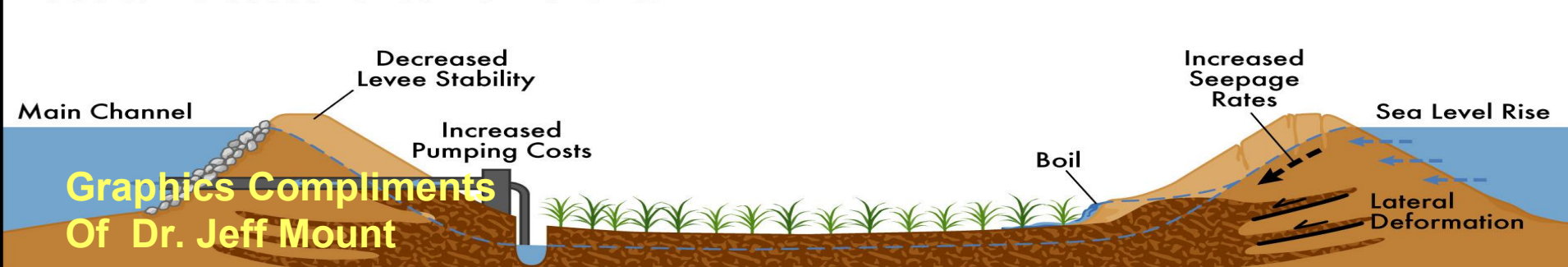
Pre-1880: Freshwater Tidal Marsh



1900's: Elevation Loss

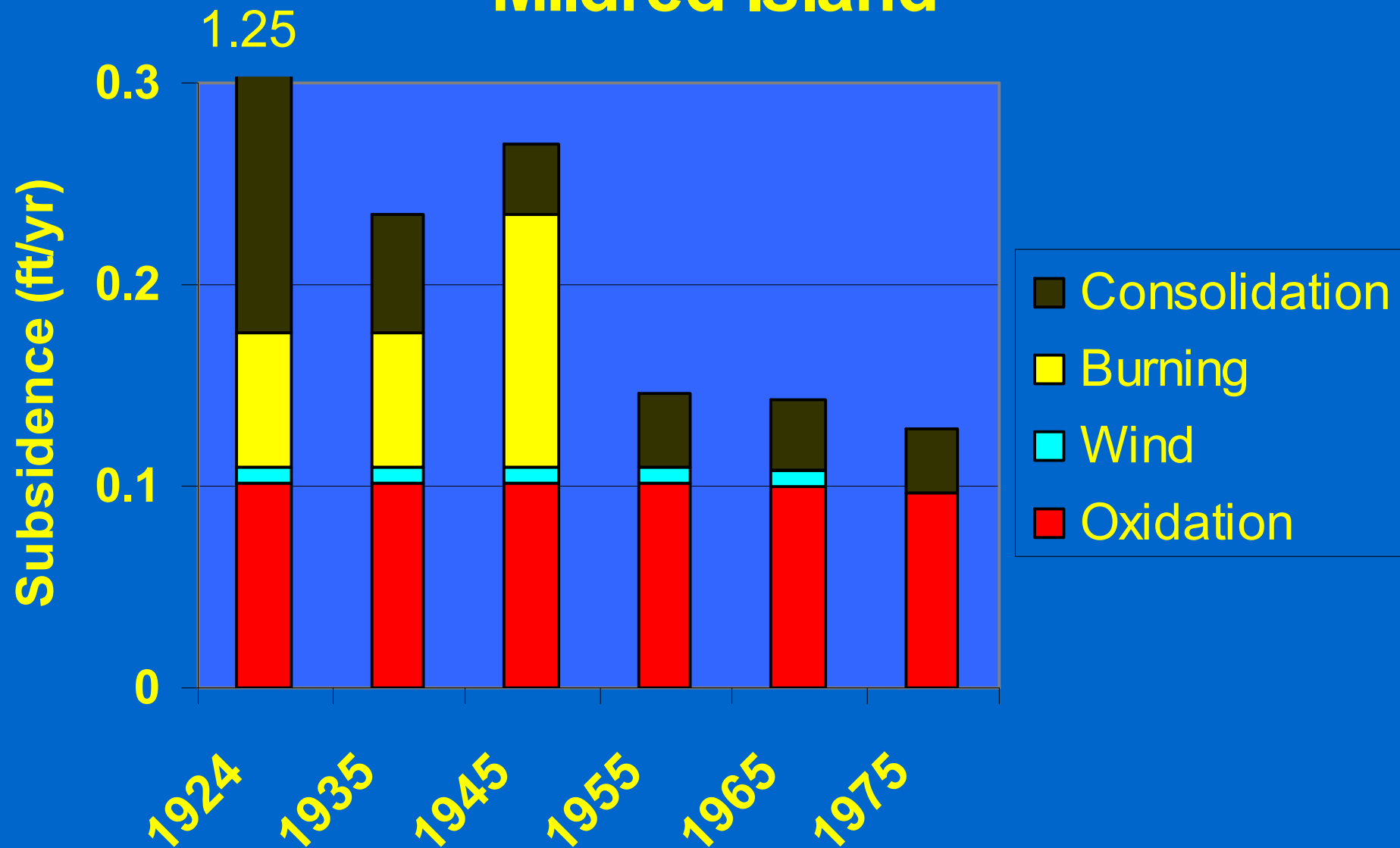


2000's: Increased Levee Maintenance



Graphics Compliments
Of Dr. Jeff Mount

Historical Causes of Subsidence, Mildred Island

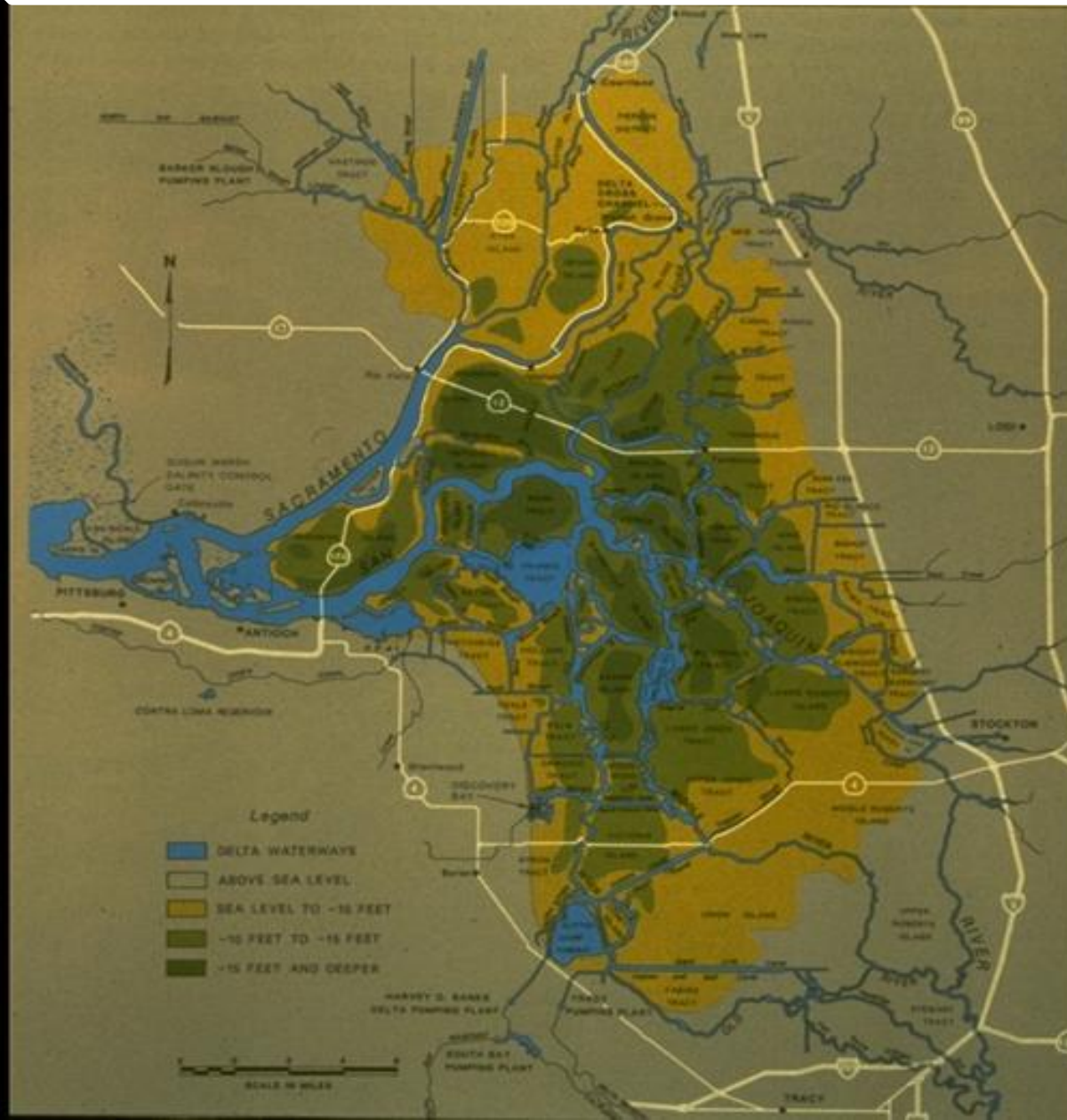


Delta Today – As it appears



Land Surface Below Sea Level

Sacramento-San Joaquin Delta



Delta Today – As it exists



Microbial Decomposition

Plant
Matter

1.7 Tons/ac.

Carbon
Dioxide

4.9 Tons/ac.

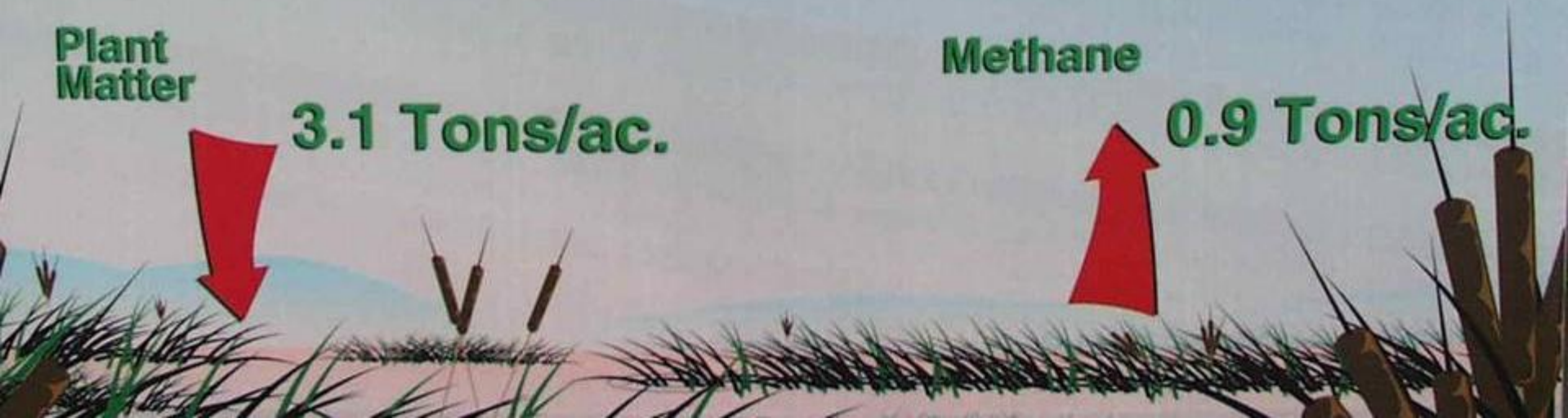


Plant
Matter

3.1 Tons/ac.

Methane

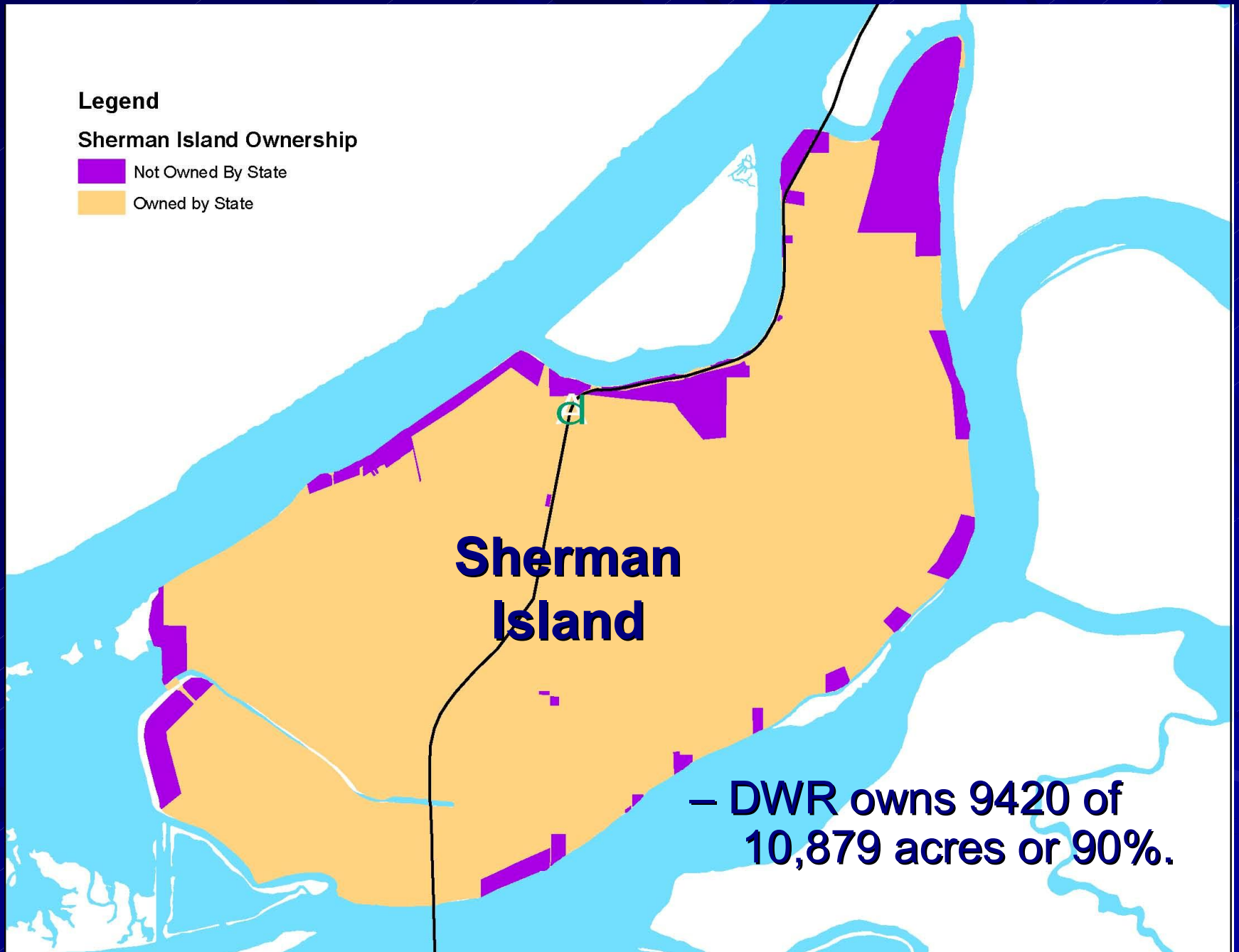
0.9 Tons/ac.



Legend

Sherman Island Ownership

- Not Owned By State
- Owned by State



Explanation

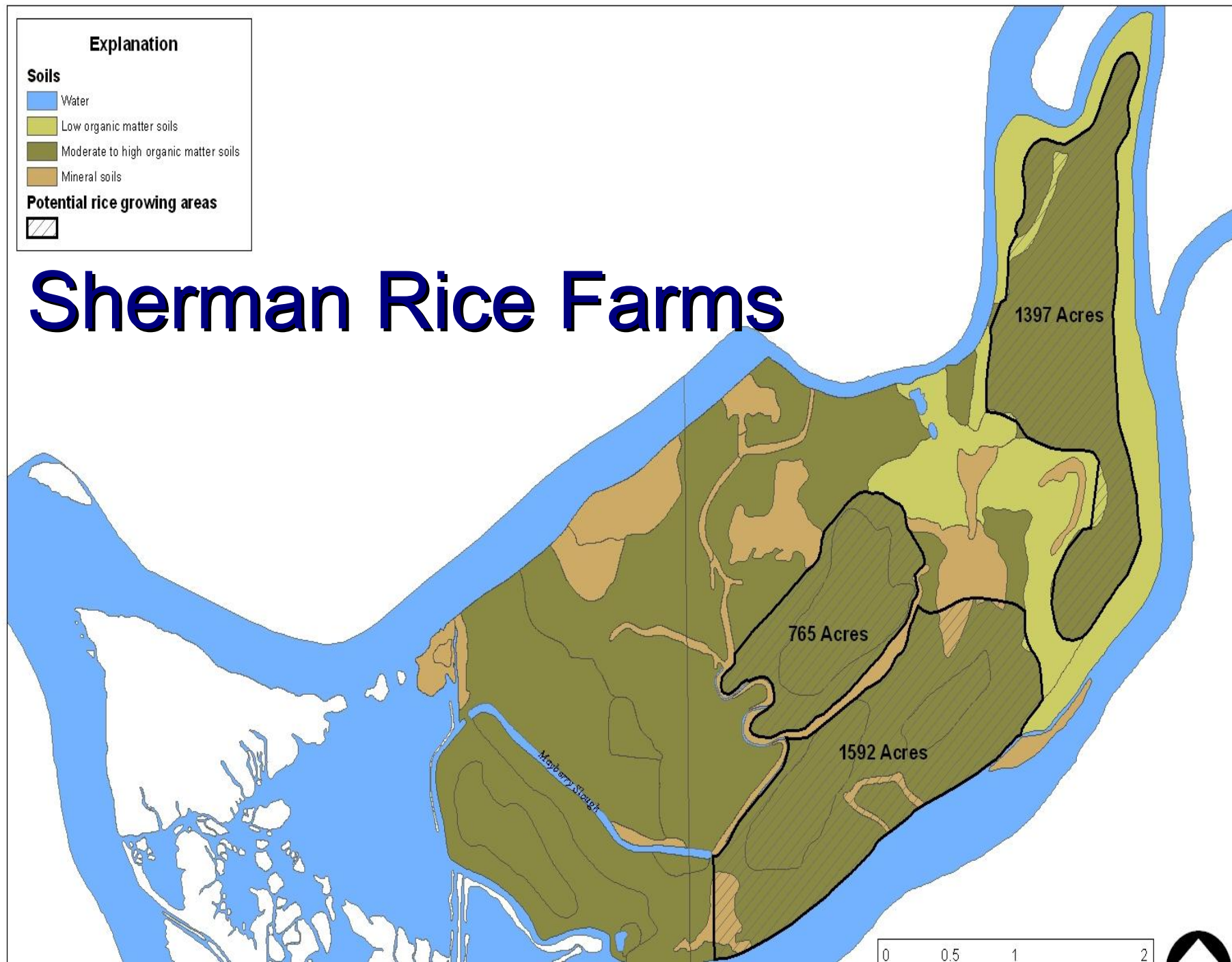
Soils

- Water
- Low organic matter soils
- Moderate to high organic matter soils
- Mineral soils

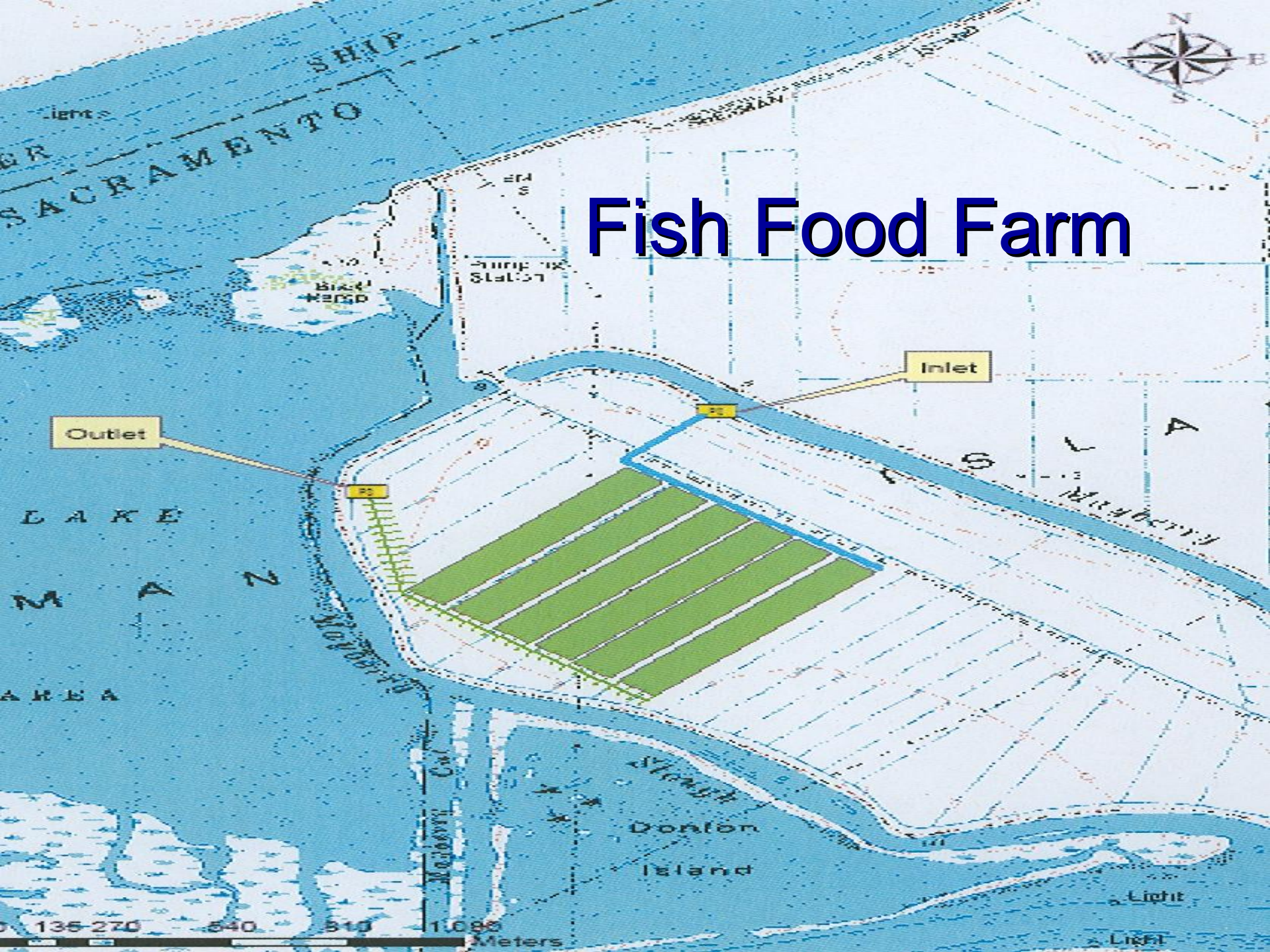
Potential rice growing areas



Sherman Rice Farms



Fish Food Farm



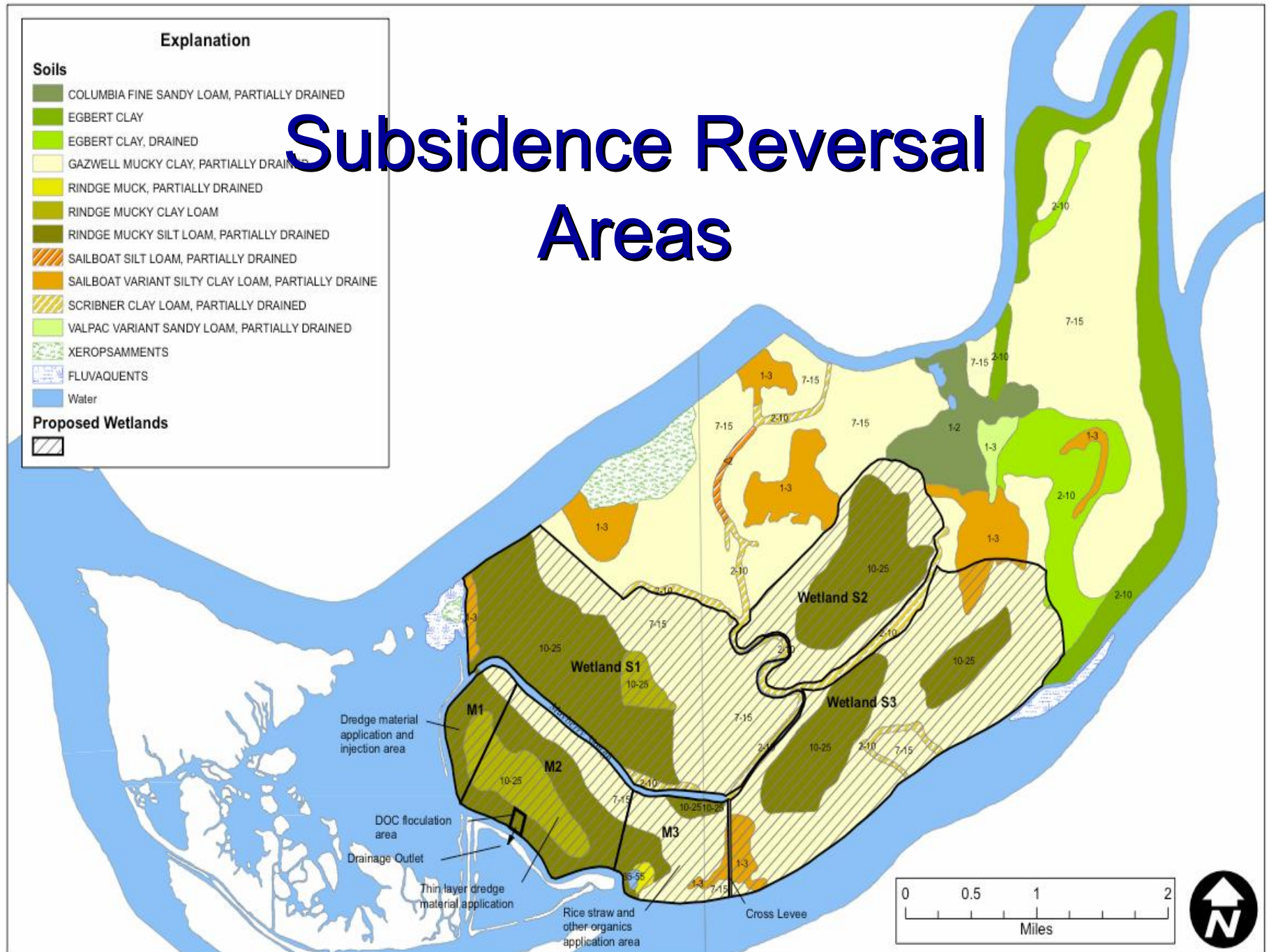
Subsidence Reversal Areas

Explanation

Soils

- COLUMBIA FINE SANDY LOAM, PARTIALLY DRAINED
- EGBERT CLAY
- EGBERT CLAY, DRAINED
- GAZWELL MUCKY CLAY, PARTIALLY DRAINED
- RINDGE MUCK, PARTIALLY DRAINED
- RINDGE MUCKY CLAY LOAM
- RINDGE MUCKY SILT LOAM, PARTIALLY DRAINED
- SAILBOAT SILT LOAM, PARTIALLY DRAINED
- SAILBOAT VARIANT SILTY CLAY LOAM, PARTIALLY DRAINED
- SCRIBNER CLAY LOAM, PARTIALLY DRAINED
- VALPAC VARIANT SANDY LOAM, PARTIALLY DRAINED
- XEROPSAMMENTS
- FLUVAQUENTS
- Water

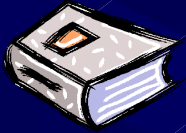
Proposed Wetlands



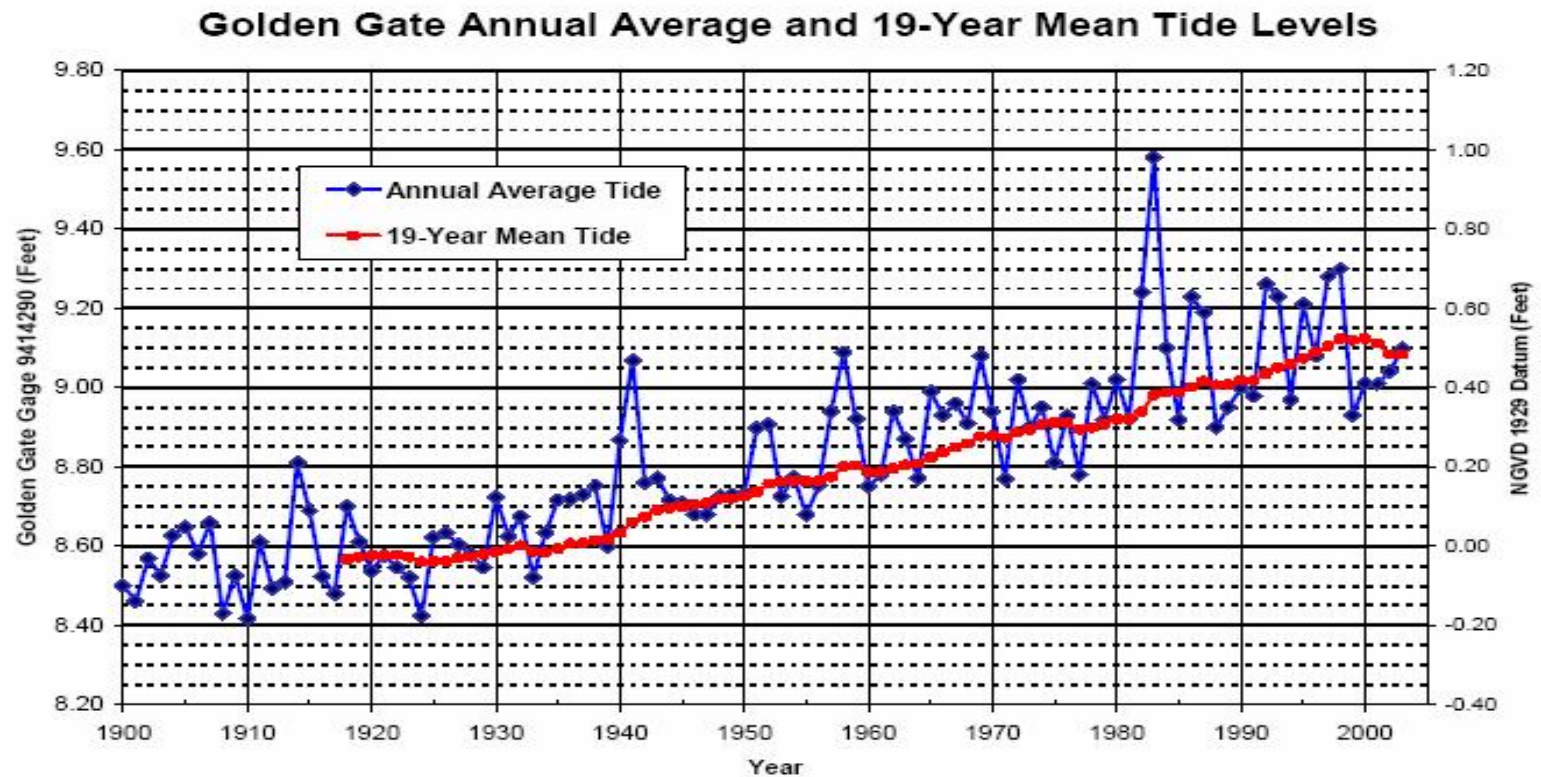
Delta Levees - Questions



Sea Level Rise



Historical Evidence



Source: Roos, 2003

Flowchart For Delta Problem Resolution

